

CLAIMS

1. A rack oven, comprising:
a heat exchanger section and a rack receiving section, the rack receiving section including a door to provide access thereto;
an air flow system including at least one blower and an air flow path for enabling air to circulate from the heat exchanger section where it is heated, into the rack receiving section for transferring heat to food products, and back to the heat exchanger section for further heating, wherein the air flow path includes at least one passage from the heat exchanger section to the rack receiving section, where the passage is located proximate to a wall and configured such that heated air from the heat exchanger section is directed along an internally facing surface of the wall so as to attach to and flow along the internally facing surface of the wall from one side of the rack receiving section toward an opposite side of the rack receiving section.
2. The rack oven of claim 1, further comprising:
a steam generator located for adding moisture to air within the oven.
3. The rack oven of claim 1 wherein the at least one passage comprises at least one vertically extending slot.
4. The rack oven of claim 3 wherein the vertically extending slot is formed adjacent the internally facing surface of the wall and includes a vane that overlaps with the internally facing surface of the wall.

5. The rack oven of claim 4 wherein a distance of overlap of the vane and the internally facing surface of the wall is at least one inch.
6. The rack oven of claim 5 wherein the distance of overlap is about two inches.
7. The rack oven of claim 4 wherein a spacing between the wall and the vane is in the range of about 0.25 inches to about 0.75 inches.
8. The rack oven of claim 1 wherein the air flow path further includes an air opening located for passing air from the rack receiving section back to the heat exchanger section.
9. The rack oven of claim 8 wherein the air opening is located centrally along a depth of a separating wall between the rack receiving section from the heat exchanger section, the passage is located toward a rear part of the oven, and the wall comprises at least a rear side of the rack receiving section.
10. The rack oven of claim 9 wherein the air flow system further comprises an additional passage from the heat exchanger section to the rack receiving section, the additional passage located on the separating wall toward a front part of the oven.
11. The rack oven of claim 1, further comprising an air deflector positioned toward the opposite side of the rack receiving section to direct the heated air off of the wall.
12. The rack oven of claim 11 wherein the deflector comprises at least one adjustable deflector.

13. The rack oven of claim 12 wherein the deflector comprises a plurality of vertically distributed adjustable deflectors.

14. The rack oven of claim 1 further comprising an overhead rack rotating mechanism located within the rack receiving section.

15. The rack oven of claim 1 wherein the heated air from the heat exchanger section attaches to and flows along the internally facing surface of the wall for a travel distance of at least two-thirds of a total distance from the passage to the opposite side of the rack receiving section.

16. The rack oven of claim 1, further comprising a rack positioned within the rack receiving section, wherein the heated air from the heat exchanger section attaches to and flows along the internally facing surface of the wall and is deflected off of the wall by a deflector onto a portion of the rack spaced away from the passage.

17. The rack oven of claim 16 wherein the rack is integrated with the oven.

18. The rack oven of claim 16 wherein the rack comprises a wheeled rack that is capable of movement into and out of the oven.

19. A convection oven, comprising:
a heat exchanger section and a product receiving section, the product receiving section including a door to provide access thereto;
an air flow system including at least one blower and an air flow path for enabling air to circulate from the heat exchanger section where it is heated, into the product receiving

ITW 30532

section for transferring heat to food products, and back to the heat exchanger section for further heating, wherein the air flow path includes a vertical louver system providing flow communication between the heat exchanger section to the product receiving section, where the vertical louver system is located proximate to a wall and configured such that heated air from the heat exchanger section is directed along an internally facing surface of the wall so as to attach to and flow along the internally facing surface of the wall from one side of the product receiving section toward an opposite side of the product receiving section.

20. The convection oven of claim 19, further comprising an air deflector positioned toward the opposite side of the rack receiving section to direct the heated air away from the wall.

21. The convection oven of claim 20 wherein the deflector comprises at least one adjustable deflector.

22. The convection oven of claim 21 wherein the deflector comprises a plurality of vertically distributed adjustable deflectors.

23. In a convection oven having a circulating air flow between a heat exchanger section and a product receiving section, the heat exchanger section located to one side of the product receiving section, a method comprising the steps of:

effecting a transfer of heated air from the heat exchanger section to a side of the product receiving section opposite the one side by directing heated air along an internally facing surface of a wall of the product receiving section such that the heated attaches to and flows along the internally facing surface of the wall from the one side to the side opposite the one side; and

directing the heated air away from the wall when the heated air is near the side opposite the one side.

24. The method of claim 23 wherein the product receiving section includes a door providing access thereto, the door located on a front part of the oven, wherein the wall comprises at least a rear portion of the product receiving section.

25. The method of claim 23 wherein a deflector extends from the wall to direct the heated air off the wall.

26. The method of claim 27 including the further step of adjusting an orientation of the deflector relative to the wall.

27. The method of claim 23 wherein the heated air is directed from the heat exchanger section out of a vertically extending slot located proximate to the wall.

28. The method of claim 23 wherein the oven comprises a rack oven, the product receiving section comprises a rack receiving area including a mechanism for rotating a rack placed therein.